Contribution ID: **26** Type: **Oral**

Proposed DRLs for Mammography in Switzerland

Friday, 28 October 2022 13:45 (10 minutes)

Purpose:
The aim of this study is to propose Diagnostic Reference Levels (DRLs) values for Mammography in Switzerland.

Methods:
The data was obtained by means of a survey. A total of 31 centres including 5 University hospitals, several cantonal hospitals, and large private clinics, globally covering all linguistic regions of Switzerland participated in the data collection. The data gathered contained all the necessary technical information: manufacturer and model of the device, kV, mAs, mean glandular dose (MGD), etc. The data collected was considered to be representative of the practice in Switzerland.

Results:
From the 31 institutes contacted, information was received from 36 mammography units (6 different manufacturers represented) and 24762 acquisitions. For most of the centres, the data was extracted from the dose management system (DMS). Those not having their mammography unit connected to a DMS weren't keen to participate. The data collected was sorted into the following categories: 2D projection or 3D digital breast tomosynthesis (DBT) examination, craniocaudal (CC) or mediolateral oblique (MLO) projection, and 8 different categories of compressed breast thickness (CBT) ranging from 20mm to 100mm in 10mm width intervals. The analysis showed that the data obtained reflects of the practice in Switzerland, and the most frequently used units are represented in this study. The main results revealed that the MGD is larger for 3D than for 2D acquisitions for the same CBT. When the CBT increased from 20mm to 100mm, the 75th percentile of the MGD values obtained increased from 0.81mGy to 2.96mGy for 2D examinations, and from 1.22mGy to 4.04mGy for 3D examinations, for both projections (CC/MLO). The results obtained were compared with the DRLs values of several other countries for similar methodologies and are in good agreement.

Conclusion:
Swiss diagnostic reference values (DRLs) can be proposed according to the examination type (2D/3D), projection (CC/MLO) and CBT. The proposed values compare well with those obtained in the literature that have been performed using the same methodology.

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Session Classification: Session IV: Radioprotection, Treatment Techniques

Track Classification: Radioprotection